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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,493	02/04/2004	Paul Benning	200315949-1	2856
22879	7590	08/05/2005	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			CRUZ, MAGDA	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/771,493	<b>Applicant(s)</b> BENNING ET AL.	
	<b>Examiner</b> Magda Cruz	<b>Art Unit</b> 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.  
 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-18 and 20-43 is/are rejected.  
 7) ☒ Claim(s) 19 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 07/05/2005.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6, 11-18, 20-29, 31-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Cruz-Urbe et al.

Cruz-Urbe et al. (US Patent Number 6,583,486 B2) discloses:

- Regarding claims 1 and 25, a projection display screen (Figure 1, element 14) that can electrically alter the reflectivity of a region of the projection display screen in response to the intensity of incident projected light that is applied at the region (column 2, lines 16-17 and 57-59).
- Regarding claim 2, the projection display screen level of incident projected light is above a prescribed intensity threshold value for ambient light (column 6, lines 46-50).
- Regarding claim 3, there are bi-colored particles (Figure 8, elements 90 and 92) arranged substantially in a plane in the projection display screen (column 11, lines 54-60).

- Regarding claims 4, 18 and 28, a variable surface (i.e. pixel element) reflectivity layer that changes its light reflectivity in response to a change in applied potential (column 3, lines 64-67), and a photoconductor layer (i.e. active layer) that can apply a potential to the variable surface reflectivity layer to change its light reflectivity in response to applied incident projected light (column 3, lines 16-19 and column 6, lines 41-46).
- Regarding claims 6 and 32, the variable surface reflectivity layer comprises a polarizing layer and a liquid crystal layer (column 9, lines 22-24).
- Regarding claims 11 and 33, the variable surface reflectivity layer comprises objects (i.e. spherical particles; element 80; column 11, line 54), each object having different surface regions (i.e. white surfaces, element 90 or black surfaces, element 92) of different reflectivities (column 11, lines 55-59), wherein each object is rotatable to display a first reflectivity when a potential is applied, and each object is rotatable to display a second reflectivity when the potential is not applied (column 11, lines 41-47).
- Regarding claim 12, the variable surface reflectivity layer (Figure 6, element 66) comprises an electrostatically de-wettable material (Figure 6, element 72).

- Regarding claim 13, a contrast of an image of a passive display is improved by using a display screen that changes its reflectivity at each location (column 3, lines 19-22).
- Regarding claim 14, a display surface, a back electrode, and a transparent conductive layer wherein the applied light includes an incident applied light that is at least partially reflected off the display surface (column 7, lines 33-37), wherein the reflectance of the applied light off the incident projected light surface can be varied by altering a relative charge between the back electrode and the transparent conductive layer (column 14, lines 26-30 and 34-38).
- Regarding claim 15, varying the reflectance of the applied light off the incident projected light surface acts to reduce a maximum black level of any region of an image that can be projected from the incident projected light surface (column 8, line 63 through column 9, line 2).
- Regarding claim 16, the projection display screen reacts to incident projected light to compensate for elevated black point caused by increasing the ambient light that is directed at the projection display screen (column 6, lines 46-50).
- Regarding claim 17, the projection display screen is configured to reduce the light reflected from a segment of the projection display screen when the segment of the projection display screen is displaying a black level (column 6, lines 46-50).

- Regarding claim 20, the variable surface reflectivity layer includes a number of objects (i.e. spherical particles; column 11, lines 42-43) that align in a first orientation wherein a first light reflectivity is directed toward the incident projected light surface to be visible from the incident projected light surface when a first charge is applied to a region of the incident projected light surface (i.e. said particles are able to rotate in response to a change in the electrical field; column 11, lines 44-46), and wherein a number of objects align in a second orientation (i.e. said orientation depends in the electric field created by the application of an appropriate voltage; column 11, lines 45-48) wherein a second surface reflectivity is directed toward the incident projected light surface to be visible from the incident projected light surface when a second charge is applied to a region of the incident projected light surface (column 11, lines 54-60).
- Regarding claim 21, the light that is applied at the location is in the form of an image (column 7, lines 59-60).
- Regarding claim 22, a light projection region that applies at least a region of the incident projected light on the projection display screen (column 2, lines 20-22), and a dedicated screen reflectivity control mechanism (i.e. reflectance processor; column 3, line 57) that can change the reflectivity of the projection display screen in response to an intensity of the incident projected light that is applied from the light projection region to the projection display screen (column 3, lines 55-59), wherein the dedicated

screen reflectivity control mechanism operates by determining the intensity of light at different regions as generated by the light projection portion (column 3, lines 59-63).

- Regarding claim 23, the dedicated screen reflectivity control mechanism (i.e. reflectance processor; column 4, line 4) is electronically-based (i.e. connected to the display controller, element 28; see Figure 3).
- Regarding claim 24, the dedicated screen reflectivity control mechanism is processor-based (i.e. combined with the processor; column 4, lines 4-7).
- Regarding claim 26, increasing a black level of the projection display screen in response to increasing the intensity of the incident projected light applied to the projection display screen (column 3, lines 29-35).
- Regarding claim 27, applying invisible light to vary the reflectance of the region of the projection display screen (column 8, lines 5-9).
- Regarding claims 29 and 39, a projection display screen that can change at least a region of its reflectivity in response to applying incident projected light that is applied at the region (column 2, lines 16-17 and 57-59), wherein the projection display screen comprises a variable surface (i.e. pixel element) reflectivity layer that changes its surface reflectivity in response to a change in applied potential (column 3, lines 64-67), and a photoconductor layer that can apply a potential to the variable surface reflectivity layer in response to applied incident projected light (column 3, lines 16-19 and column 6, lines 41-46).

- Regarding claim 31, the variable surface reflectivity layer further comprises a layer of bi-color particles (Figure 8, element 90 and 92) that can rotate to display different reflectivities as a result of changing an applied potential (column 11, lines 41-47).
- Regarding claim 34, causing the areas of a projection display screen that are receiving a low intensity projected light to have a low reflectivity (i.e. low luminance value) as compared to regions of the projection display screen that are receiving a high intensity projected light (i.e. brighter; column 3, lines 22-29).
- Regarding claims 35-36 and 40-41, the reflectivity of the projection display screen is determined by altering the distance that particles (Figure 6, element 72) of one reflectivity are located within a fluid (Figure 6, element 74) of a second reflectivity that faces a user (column 10, lines 26-29).
- Regarding claims 37 and 42, the reflectivity of the projection display screen is determined by determining how much a liquid crystal layer rotates a polarization of light that is to be applied to a polarization layer toward a viewer (column 9, lines 58-63).
- Regarding claims 38 and 43, the reflectivity of the projection display screen is determined by whether an ink layer (i.e. pigmented particles) that light passes through on its way to a user is in its wetted state (i.e. distributed state) or its non-wetted state (i.e. condensed state; column 10, lines 11-25).



***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz-Urbe et al.

Cruz-Urbe et al. (US Patent Number 6,583,486 B2) teaches the salient features of the present invention, except a variable surface reflectivity layer comprising electronic ink. However, Cruz-Urbe et al. discloses an electronic paper (column 9, lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to determine that the electronic paper (which can be define as a variable surface reflective layer) comprises electronic ink, since it is well known in that art that an electronic ink is the term given to writing that is electronically captured from and/or electronically projected on the whiteboard (i.e. electronic paper) without using a physical ink.

5. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz-Urbe et al. in view of Lambert et al.

Cruz-Urbe et al. (US Patent Number 6,583,486 B2) teaches the salient features of the present invention as explained above (see Rejection under §102(b)), except a filter over the photoconductor layer.

Lambert et al. (US Patent Number 6,597,501 B2) discloses a filter (i.e. polarizing layer; column 2, line 25) over the photoconductor layer (i.e. active layer; column 2, lines 24-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the photoconductor layer disclosed Lambert et al. in substitution of the photoconductor layer from Cruz-Urbe et al.'s invention, for the purpose of reducing the reflection of ambient light (Lambert et al., column 2, lines 42-43).

***Allowable Subject Matter***

6. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art or record neither shows nor suggests a region of the material of the first reflectivity displaced away from the incident projected light surface to make the liquid of the second reflectivity visible through the incident projected light surface when a second electromagnetic field is applied across the region of the layer of variable surface reflectivity layer.

**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hunter et al. (EP 1 139 158 A2) discloses an active projection screen for reflecting a projected image having improved contrast.

Allen et al. (EP 1 457 963 A1) teaches an enhanced contrast projection screen and a projected control image.

Vincent et al. (US Patent Number 6,853,478 B2) shows a light valve mechanism used for imaging on an adjacent pixel patterned construct.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Magda Cruz  
Patent Examiner  
Art Unit 2851

July 28, 2005